



**SENSITIVE AREA STUDY  
AND  
BUFFER ENHANCEMENT PLAN**

**PSW SEATTLE – FIRWOOD LANE  
KIRKLAND, WA**

*Wetland Resources, Inc. Project #15057*

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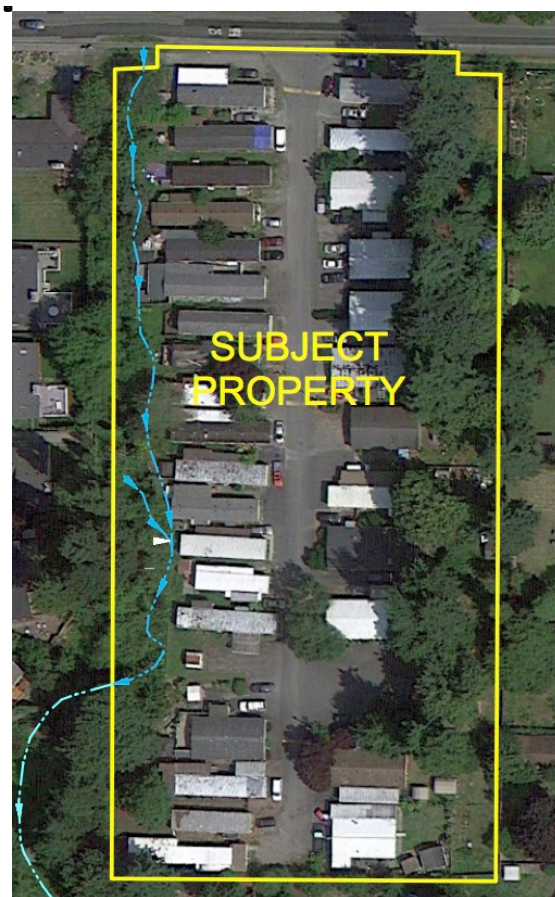
BUFFER ENHANCEMENT PLANTING PLAN (SHEET 4/4)

## 1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) completed a site investigation on November 14, 2013 to locate jurisdictional wetlands and streams on and in the vicinity of King County Parcel # 9194100015. The subject property is located at 12342 94<sup>th</sup> Avenue NE in the City of Kirkland, Washington. The site is further located in Section 30, Township 26N, Range 05E, W.M.

The subject property is currently a mobile home park with multiple residences, access road, and children's play area. While the majority of the site is impervious surface, the eastern and western boundaries are vegetated by red alder (*Alnus rubra*), Sitka spruce (*Picea sitchensis*), willows (*Salix* spp.), and red-stem dogwood (*Cornus sericea*). Developed single-family residential lots surround the property. An undeveloped forested parcel/corridor is also located to the west. Along the east and west property lines are vegetated with native trees and shrubs, herbaceous vegetation, and ornamental plants. The topography of the subject property slopes slightly to the south. The subject site is located within the Juanita Creek Basin, which is a Primary Basin per the City of Kirkland Sensitive Areas Map.

No wetlands were found on the subject site. Two Class A streams are present on the subject site. Pursuant to Kirkland Zoning Code 90.90.1, Class A streams within primary basins receive 75-foot buffers.



**Figure 1: Aerial view of the subject property.**

## **1.1 PROJECT DESCRIPTION**

The applicant is proposing a Low Impact Development subdivision containing 19 lots, an access road, and associated infrastructure. All existing mobile homes and the current access road will be removed from the site. As part of the development plan, the applicant is proposing to reduce the stream buffer as described in Kirkland Zoning Code (KZC) 90.100. This will reduce the buffer from 75 feet to 50 feet at the narrowest point. The standard 75-foot buffer will be observed in the southern end of the site and several areas adjacent to the development will observe a buffer greater than 50 feet. As part of the buffer reduction plan, invasive species, such as Himalayan blackberry and English ivy, will be removed and native plants will be installed across the buffer area.

There is an existing sewer line located within the buffer of Stream A in the southwest area of the site. The proposed development will connect to the existing sewer line outside of the stream buffer. Additionally, a stormwater pond is proposed in the southwest corner of the site, and will be connected to the stormwater system. While the majority of the water collected will enter the stormwater system, there is an emergency overflow on the northwest edge of the pond. This overflow consists of a riprap dissipation feature, which ends at the edge of the stream buffer.

The streams and associated buffers will be placed in a Native Growth Protection Easement. The proposed plan provides the required 10-foot building setback from the perimeter of the reduced buffer.

### **1.1.1 Right-of-way Improvements**

As part of the proposed development, a new section of sidewalk will be installed. The majority of the proposed sidewalk located within the standard 75-foot buffer will be located within an area that is currently impervious surface. This area currently contains asphalt, gravel, and cement pavers (see Figure 2 below). The proposed development plan will reduce the amount of impervious surface adjacent to NE 124<sup>th</sup> Street within the standard buffer by 290 square feet. The section of proposed sidewalk outside of the existing impervious surfaces is 206 square feet. The total amount of impervious surface within the buffer adjacent to NE 124<sup>th</sup> Street will be reduced by 84 square feet. Therefore, the installation of the sidewalk will not increase the amount of impervious surface or reduce the flood storage capacity of this area.



**Figure 2: Existing right-of-way conditions**

Area where proposed sidewalk will be located. (Photo from Google Earth).

## **1.2 CRITICAL AREAS CLASSIFICATION**

### **1.2.1 Cowardin System Classification**

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classification for the on-site critical areas are as follows:

**Stream A:** Riverine, Lower Perennial, Unconsolidated, Cobble-Gravel.

**Stream B:** Riverine, Intermittent, Streambed, Cobble-Gravel.

### **1.2.2 City of Kirkland Classifications**

Under the city of Kirkland Zoning Code (KZC), Chapter 90, the on-site critical areas are classified as follows:

#### **Stream A**

Class A Stream: This Stream is perennial, has documented salmonid presence, is unimpeded by fish barriers, and connects to Juanita Creek. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

## **Stream B**

Class A Stream: This Stream is Intermittent, is unimpeded by fish barriers, and is hydrologically connected to Juanita Creek via Stream A. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

## **2.0 CRITICAL AREAS DETERMINATION REPORT**

### **2.1 PUBLICALLY AVAILABLE DATA**

Prior to conducting the site investigation, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources included the following:

#### *USDA/NRCS Web Soil Survey*

One soil map unit is predicted to occur on the subject parcel. Kitsap Silt Loam, 2 to 8 percent slopes is mapped throughout the site area. A more detailed soil map unit description is provided in the “2.2 Field Determination Methodology” section below.

#### *USFWS National Wetlands Inventory (NWI)*

No wetlands were identified in the immediate vicinity of the subject property. The nearest occurrence is Lake Washington, approximately 0.4 miles south.

#### *King County iMap interactive mapping tool*

No steep slopes with a gradient greater than 33% or other critical areas, such as streams or other water bodies, were identified on-site.

#### *DNR ARCIMS Mapping Application for streams*

One fish-bearing stream appears to be identified along the western portion of the subject site.

#### *WDFW Priority Habitat and Species (PHS) Interactive Map*

Identifies Juanita Creek over 900 feet southeast of the subject site. This stream is documented as providing habitat for Coho, Chinook, coastal cutthroat trout, sockeye, and steelhead.

#### *WDFW Salmonscape Interactive Mapping System*

Confirms the presence of the stream on the western boundary of the subject site, as well as Juanita Creek. Salmonid species using the stream identified on-site include Chinook, steelhead, Coho, and sockeye. It should be noted that all fish presence was modeled for this stream; not observed. These salmonid species have been observed in Juanita Creek.

#### *StreamNet Mapper*

Confirms the presence of Juanita Creek identified by the DNR ARCIMS, WDFW PHS, and Salmonscape mapping systems.

Confirms both Juanita Creek and the on-site stream, and that Juanita Creek has salmonid presence.

## **2.2 FIELD DETERMINATION METHODOLOGY**

Wetland Resources' staff conducted a site visit on November 14, 2013 to locate wetlands and streams occurring within and near the project site. Wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred as 2010 Regional Supplement). The *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology Publication #96-94, March 1997, or as amended) uses similar criteria for wetland delineation. Our findings are consistent with both manuals.

The following criteria descriptions were used in the boundary determination:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils;
- 3.) Determining the presence of wetland hydrology

The Ordinary High Water Mark (OHWM) of any on-site streams, when present, are identified using the methodology described in the Washington State Department of Ecology document *Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft)* (Olson and Stockdale 2010). Streams are classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030 and SCC 30.62A.230(1).

### **2.2.1 Hydrophytic Vegetation Criteria**

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

### **2.2.2 Soils Criteria and Mapped Description**

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils.

According to NRCS Web Soil Survey, the soil map unit Kitsap Silt Loam, 2 to 8 percent slopes, is predicted to occur on the subject property.



Kitsap silt loam, 2 to 8 percent slopes, is described as an undulating soil on low terraces of the major valleys of the area. The A horizon ranges from very dark brown to dark brown. The B horizon ranges from dark yellowish brown to dark brown and from silt loam to silty clay loam. Some areas are up to 10 percent included Alderwood gravelly sandy loam; some are up to 5 percent the very deep, sandy Indianola soils, and some are up to 5 percent the poorly drained Bellingham, Tukwila, and Seattle soils. Water flows on top of the substratum in winter. Permeability is moderate above the substratum and very slow within it. Available water capacity is moderate to moderately high.

### **2.2.3 Hydrology Criteria**

The Washington State Wetlands Identification and Delineation Manual, 1997 edition, states that “areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days  $\geq 12.5$  percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands.” Field indicators are used for determining whether wetland hydrology parameters are met.

Based on the results of the site investigation, no wetlands were identified on the subject property.

## **2.3 BOUNDARY DETERMINATION FINDINGS**

### **2.3.1 On-site Streams**

Stream A enters the site from the north, flows from north to south along the west edge of the property and continues off-site to the southwest. It then appears to flow southeast and joins Juanita Creek after moving through a culvert/pipe.

Stream B is a tributary of Stream A. Stream B enters the site from a pipe on the west property boundary, flows southeast and joins Stream A. The pipe Stream B flows out of is most likely part of the stormwater system for the adjacent residential development.

### **2.3.2 Non-wetland Areas**

The top six inches of the soil profile typically has a Munsell color of dark grayish brown (10YR 4/2). Beginning at inches below the surface, the soil typically has a color of very dark grayish brown (10YR 3/2). The entire profile has a silt loam texture and no redoximorphic features were observed. These soils do not meet any hydric indicators.

### **2.3.3 Wildlife**

The on-site stream segments provide low to moderate habitat functions. The streams and their associated edges provide a potential movement corridor, which are extremely important as areas become more populated. The critical areas and the associated buffers contain resources such as food, water, thermal cover, and hiding cover in close proximity. However, these associated buffer areas have been largely developed, so the provided habitat area is greatly reduced. No mammalian species were detected during the on-site investigations, although several species, including gray squirrels (*Sciurus spp*) and raccoon (*Procyon lotor*), are expected to occur within the

area. Avian activity was not strongly detected. However, given the habitat available, it is expected that the following avian species use the area: American Crow (*Corvus brachyrhynchos*), Steller's Jay (*Cyanocitta stelleri*), Ruby-crowned Kinglet (*Regulus calendula*), Golden-crowned Kiglet (*Regulus satrapa*), Black-capped Chickadee (*Parus atricapilla*), Dark-eyed Junco (*Junco hyemalis*), and Song Sparrow (*Melospiza melodia*). The stream channels provide habitat for several salmonid species including steelhead, Coho, Chinook, and sockeye.

### **3.0 STREAM BUFFER FUNCTIONS AND VALUES ASSESSMENT**

#### **3.1 EXISTING STREAM BUFFER FUNCTIONS AND VALUES**

The current condition of the on-site buffer area associated with Stream A is primarily developed as impervious surface (mobile homes) and associated lawn/yard areas. The existing vegetation along the stream channel provides low to moderate habitat functions, which are limited by the number of invasive species present. These functions and values provided by the current buffer are significantly less than those provided by undisturbed buffer areas.

##### *Water Quality*

Vegetated stream buffers obstruct water flow, thereby decreasing water velocity, allowing infiltration into the soil, and reducing soil erosion potential. The buffer area east of Stream A on-site is primarily mobile homes and lawn/yard areas. The lawn allows for some surface water filtration. The on-site buffers do provide somewhat of a water quality benefit, but the benefit is limited by the degraded and altered conditions.

##### *Hydrologic functions*

Stream buffers help to moderate water level fluctuations. Buffer vegetation impedes the flow of runoff, increases the humus content of soil (greater adsorption capacity), and preserves soil composition as intense rainfall hits the ground. Buffers within the subject property do perform this function at a low level, limited by the lack of dense vegetation and amount of impervious surface present.

##### *Wildlife Habitat*

Many birds, mammals, and amphibians use stream buffers for some part of their life needs. Their use of these sites is dependent on the valuable edge habitat found at the wetland/upland border. The existing vegetation along the stream channel provides some habitat function, but at a minimal level.

#### **3.2 POST ENHANCEMENT FUNCTIONS AND VALUES**

As part of a buffer reduction plan, the applicant is proposing to enhance the on-site buffer area adjacent to Stream A. Buffer enhancement will include removal of all structures, fences, pavers, lawn, and non-native invasive plants. After removal, the areas previously covered with impervious surfaces will be tilled to de-compact the soil. Once site preparation is completed, native plantings will be installed across enhancement areas. The proposed buffer enhancement will provide a denser, more diverse native vegetation community. The increased vegetation density will provide screening between residences and the associated sensitive areas. Increased

diversity of native plant species will provide a greater array of resources for native wildlife, and the increased density will create more opportunities for refuge. In addition to increased habitat quality for wildlife species, the increase in persistent woody stems will reduce surface stormwater flow; decreasing flood flow and improving water quality through reduction of sediment.

The primary functional lift that will be provided by enhancement is the protective ability of the buffer; maintaining and stabilizing the on-site stream corridor. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. In conclusion, the buffer enhancement is anticipated to significantly increase the level of functions and values currently being provided by the on-site buffer area associated with Stream A.

## **4.0 BUFFER REDUCTION AND ENHANCEMENT**

### **4.1 KIRKLAND ZONING CODE BUFFER MODIFICATION REQUIREMENTS**

KZC 90.100(2) enumerates a list of requirements associated with buffer reduction. Portions of the city of Kirkland code are in italics below, with responses provided in normal text underneath:

*An improvement or land surface modification shall be approved in a wetland buffer only if:*

- a. *It is consistent with Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);*

The objective of Kirkland's Streams, Wetlands and Wildlife Study is to “provide the foundation for development of policies, regulations and incentives that will maintain, and to the degree possible, improve the quality of Kirkland's streams, wetlands and natural areas.” This study provides a list of opportunities for enhancement and restoration of critical areas within the Juanita Creek Basin. The majority of these opportunities are outside of the scope for this project, given that they concern wetlands specifically. However, the primary ecological functional recommendation for stream buffers is enhancement to provide cover for wildlife movements. The area of standard stream buffer that is proposed for reduction is currently occupied by impervious surfaces and yards, which provide essentially no protection of the stream. Considering that the proposed buffer enhancement is expected to reduce food flows, improve water quality, and contribute to wildlife habitat, the proposed buffer enhancement plan is consistent with this study.

The Kirkland Sensitive Areas Regulatory Recommendations Report outlines recommendations for buffer width reductions. This report recommends that stream buffer modification only be allowed if buffer “averaging” or buffer enhancement is proposed. Additionally, this report recommends that buffers associated with Class A streams, which are only within a primary basin, should be limited to a 25-foot reduction. This recommendation is consistent with the maximum one-third reduction required by KZC 90.100(1). Therefore, as this project complies with the KZC, the proposed buffer enhancement plan is consistent with this report.

2) *It will not adversely affect water quality;*

Reducing the amount of impervious surface within the buffer area will allow for greater infiltration of stormwater on-site. Increased vegetation with persistent stems is also expected to reduce surface water velocity, causing sediment to settle out of the water column. Therefore, water quality is expected to increase.

3) *It will not adversely affect fish, wildlife, or their habitat;*

The on-site streams are completely surrounded by residential development. The buffer enhancement planting (described below) will increase the diversity of native plant species within the buffer. Increased diversity of native plant species is expected to provide more habitat opportunities for terrestrial wildlife. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. These benefits are anticipated to increase the quality of fish habitat within the stream.

4) *It will not have an adverse effect on drainage and/or storm water detention capabilities;*

The area of buffer being reduced does not currently provide any significant drainage and/or stormwater capabilities. Therefore, the proposed buffer reduction will not adversely affect these capabilities.

5) *It will not lead to unstable earth conditions or create an erosion hazard;*

The enhancement area will be planted with native trees and shrubs, and will be covered in a layer of woodchips. Therefore, unstable earth conditions or erosion hazards are not anticipated as a result of this project.

6) *It will not be materially detrimental to any other property or the City as a whole;*

The area of buffer that will be reduced is primarily impervious surface (mobile homes) and maintained lawn/yard area. Reducing this area of the buffer in order to construct single-family residences, while subsequently enhancing the ecologic functions of the remaining buffer area, is expected to be materially beneficial to the surrounding area.

7) *Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;*

No fill material will be placed in the stream channels or buffer areas as part of the proposed project.

8) *All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and*

All exposed areas will be stabilized with native trees or shrubs, and any remaining bare earth will be mulched to avoid erosion.

9) *There is no practicable or feasible alternative development proposal that results in less impact to the buffer.*

The proposed development will observe a minimum stream buffer of 50 feet, as well as a 10-foot building set back from the buffer. The mobile homes currently present on-site are located between 21 and 36 feet from Stream A. Existing impervious surfaces within the reduced 50-foot buffer is approximately 4,200 square feet. The proposed impervious surface within this area is 580 square feet. Therefore, the proposed development and buffer enhancement will actually reduce the amount of stream buffer impacted by residential development.

## 4.2 BUFFER ENHANCEMENT

Buffer enhancement will include removal of all structures, fences, pavers, lawn, and non-native invasive plants within the modified buffer area. Non-native and invasive plants to be removed include: Himalayan blackberry, bittersweet nightshade, English ivy, and bindweed (morning glory). After removal, the areas previously covered with impervious surfaces will be tilled to de-compact the soil. Once site preparation is completed, native plantings will be installed across enhancement areas. Existing native vegetation will remain and additional native plants will be installed across the entire buffer area. All trees will be planted at least 10 feet west of the buffer edge, in an effort to avoid the need for removal due to potential damage to persons or property as they mature.

### 4.2.1 Planting Plan

#### ***Buffer Enhancement Planting Plan – Area A (Approximately 21,840 square feet)***

<b>Common Name</b>	<b>Latin Name</b>	<b>Size</b>	<b>Spacing</b>	<b>Quantity</b>
Douglas fir	<i>Pseudotsuga menziesii</i>	1 gallon	10'	55
Big leaf maple	<i>Acer macrophyllum</i>	1 gallon	10'	55
Western red Cedar	<i>Thuja plicata</i>	1 gallon	10'	55
Cascara	<i>Rhamnus purshiana</i>	1 gallon	10'	55
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	91
Thimbleberry	<i>Rubus parviflorus</i>	1 gallon	5'	91
Nootka rose	<i>Rosa nutkana</i>	1 gallon	5'	91
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	91
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	5'	91
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	91
Sword fern	<i>Polystichum munitum</i>	1 gallon	5'	91

#### ***Buffer Enhancement Planting Plan – Area B (Approximately 3,630 square feet)***

<b>Common Name</b>	<b>Latin Name</b>	<b>Size</b>	<b>Spacing</b>	<b>Quantity</b>
Douglas fir	<i>Pseudotsuga menziesii</i>	1 gallon	10'	9
Big leaf maple	<i>Acer macrophyllum</i>	1 gallon	10'	9
Western red Cedar	<i>Thuja plicata</i>	1 gallon	10'	9
Cascara	<i>Rhamnus purshiana</i>	1 gallon	10'	9
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	16

Red osier dogwood	<i>Cornus sericea</i>	1 gallon	5'	16
Nootka rose	<i>Rosa nutkana</i>	1 gallon	5'	16
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	16
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	5'	15
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	15
Sword fern	<i>Polystichum munitum</i>	1 gallon	5'	15

**Buffer Enhancement Planting Area C (2,580 square feet)**

Common Name	Latin Name	Size	Spacing	Quantity
Vine maple	<i>Acer circinatum</i>	1 gallon	5'	13
Indian plum	<i>Oemleria cerasiformis</i>	1 gallon	5'	13
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	13
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	13
Red osier dogwood	<i>Cornus sericea</i>	1 gallon	5'	13
Bald-hip rose	<i>Rosa gymnocarpa</i>	1 gallon	5'	13
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	5'	13
Sword fern	<i>Polystichum munitum</i>	1 gallon	5'	13

**Buffer Enhancement Planting Area D (3,900 square feet)**

Common Name	Latin Name	Size	Spacing	Quantity
Vine maple	<i>Acer circinatum</i>	1 gallon	5'	20
Indian plum	<i>Oemleria cerasiformis</i>	1 gallon	5'	20
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	20
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	20
Red osier dogwood	<i>Cornus sericea</i>	1 gallon	5'	19
Bald-hip rose	<i>Rosa gymnocarpa</i>	1 gallon	5'	19
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	5'	19
Sword fern	<i>Polystichum munitum</i>	1 gallon	5'	19

**Buffer Enhancement Planting Area E (6,540 square feet)**

Common Name	Latin Name	Size	Spacing	Quantity
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	38
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	38
Thimbleberry	<i>Rubus parviflorus</i>	1 gallon	5'	38
Nootka rose	<i>Rosa nutkana</i>	1 gallon	5'	37
Bald-hip rose	<i>Rosa gymnocarpa</i>	1 gallon	5'	37
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	37
Sword fern	<i>Polystichum munitum</i>	1 gallon	5'	37

#### 4.2.2 Large Woody Debris

In addition to the enhancement plantings, at least two pieces of woody debris will be added to the buffer area. If possible, material removed from the site for development will be salvaged for use as woody debris within the buffer enhancement area. Minimum size of the woody debris will be 10-inch diameter and 15 feet in length, or 10-foot diameter root-wads.

## 5.0 PROJECT NOTES

### *Pre-construction Meeting*

Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

### *Inspections*

A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Kirkland representative and/or the consulting professional will make these decisions during construction.

## 6.0 PLANTING NOTES

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or City staff.

### *Pre-Planting Meeting*

Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and locations of plant species including wetland versus buffer species shall occur between the landscape contractor and the consulting wetland professional.

### *Compost/Cultivation*

Areas of the buffer where buildings, fences, lawns, and other impervious surfaces were removed will have the underlying soil cultivated/de-compacted prior to planting. All areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 inches of organic compost after planting. Compost shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

### *Handling*

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant.

Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

#### *Storage*

Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland biologist and/or landscape designer prior to installation.

#### *Damaged plants*

Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

#### *Plant Names*

Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland professional, or City staff. All plant materials shall be true to species and variety and legibly tagged.

#### *Quality and condition*

Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

#### *Roots*

All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland professional and/or City staff.

#### *Sizes*

Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).



### *Form*

Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

### *Timing of Planting*

Unless otherwise approved by City staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

### *Weeding*

Non-native and invasive vegetation in the buffer enhancement area will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

### *Site conditions*

The contractor shall immediately notify the landscape designer and/or wetland professional of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

### *Planting Pits*

Planting pits shall be circular or square with vertical sides, and shall be 6" deeper and 12" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

### *Fertilizer*

Slow release fertilizer may be used if pre-approved by Snohomish County. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

### *Staking*

Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

#### *Plant Location*

Colored surveyors ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

#### *Arrangement and Spacing*

The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City staff.

#### *Inspection(s)*

A wetland biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

#### *Woodchip Mulch*

After buffer enhancement plant installation, no less than 2 to 4 inches of organic/untreated woodchips shall be placed across the planting areas. Woodchips shall be kept well away (at least 2 inches) from the trunks and stems of woody plants. Woodchips will be kept at least four feet away from the edge of the stream banks in order to prevent unnecessary debris entering the stream.

## **7.0 PROJECT MONITORING PROGRAM**

Requirements for monitoring project:

1. Initial compliance/as-built report.
2. Site inspection (twice per year) for five years, conducted in the spring and fall of each year.
3. Annual reports (one report submitted in the fall of each monitored year).

#### *Purpose for Monitoring*

The purpose for monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscape and/or wetland specialist and City of Kirkland during the monitoring period or until the project is evaluated as successful.

#### *Monitoring*

Monitoring shall be conducted for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation. Site inspections will occur twice during each monitoring year. The spring inspection will entail a general assessment of the mitigation areas and providing maintenance

recommendations for the growing season. The fall inspection will entail review of the established sampling points/transects and photo points and data collected at these areas.

#### *Vegetation Monitoring*

Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they may be drawn on approved plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage. Monitoring of vegetation sampling points shall occur twice per monitored year.

#### *Infiltration Trench Monitoring*

During each monitoring visit, the infiltration trenches adjacent to the buffer will be visually inspected. The general condition of the trenches will be included in the annual monitoring reports submitted to the City of Kirkland. If scour, erosion, sediment deposition, and/or other localized or buffer impacts occur within the buffer area, temporary erosion and sediment control measures will be installed until the necessary repairs can be made. Prior to any repairs, the project engineers shall be notified of the situation; they will assist with the repair/rehabilitation process and will coordinate with the City of Kirkland engineers to determine a solution.

#### *Photo points*

No less than three permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

#### *Monitoring Report Contents*

Monitoring reports shall be submitted by December 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, any structures or special features
5. Stream and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. General observations of infiltration trench conditions
7. Observed wildlife, including amphibians, avians, and others
8. Assessment of nuisance / exotic biota and recommendations for management
9. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

## 8.0 PROJECT SUCCESS & COMPLIANCE

### *Criteria for Success*

Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to determine plan compliance. A compliance report will be supplied to the City of Kirkland within 30 days after the completion of planting. A landscape professional or wetland biologist will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to the City after the fall site inspection of each monitored year. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a report as to the success of the project.

### *Definition of Success – Planting Areas*

The planting areas shall meet the following performance standards:

- a) End of Year 1: 100 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
- b) End of Year 3: 80 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
- c) End of Year 5: at least 80 percent aerial cover of native woody plant species, mitigation plantings must contain at least 8 native tree/shrub species, and less than 10 percent cover of weedy/invasive species. Volunteering native species will be included in the aerial cover calculation.

The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success.

### *Definition of Success – Infiltration Trenches*

The infiltration trenches shall meet the following performance standards:

- a) Buffer areas adjacent to the infiltration trenches are free from scour, erosion, sediment deposition, and/or other buffer impacts

## 9.0 MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Maintenance may include, but will not be limited to: removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by City staff, shall be applied by a licensed applicator following all label instructions.

### *Duration and Extent*

In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the five-year monitoring period. Maintenance will include:

watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance.

#### *Survival*

The permittee shall be responsible for the health of 100% of all newly installed plants for *one growing season* after installation has been accepted by the City of Kirkland. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are: failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or City of Kirkland staff.

#### *Installation Timing for Replacement Plants*

Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland professional, and/or City of Kirkland staff.

#### *Standards for Replacement Plants*

Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

#### *Replanting*

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

#### *Herbicides / Pesticides*

Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Kirkland staff.

#### *Irrigation / Watering*

Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1" of water twice per week for year one and 1" per week during year two.

#### *General*

The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

## 10.0 CONTINGENCY PLAN

If 20% of the plants are severely stressed during any of the inspections, or it appears 20% may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

## 11.0 USE OF THIS REPORT

This Sensitive Area Study and Buffer Enhancement Plan is supplied to PSW Seattle, LLC as a means of determining on-site critical area conditions as required by the City of Kirkland during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.


*Wetland Resources, Inc.*



Meryl Kamowski  
*Senior Ecologist*

## 12.0 REFERENCES

- City of Kirkland. *Kirkland Zoning Code, Chapter 90*. Kirkland, WA. December 9, 2003.
- Cowardin, et al., 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior. FWS/OBS-79/31. December 1979.
- Department of Ecology. 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication #96-94. March 1997.
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- King County. 2014. *iMap Interactive Mapping Tool*. <http://gismaps.kingcounty.gov/iMap/>.
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- NRCS. 2014. *Web Soil Survey*. United States Department of Agriculture. <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.
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- US Army COE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Vicksburg, MS
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- WDFW. 2014a. *Priority Habitat and Species (PHS) Interactive Map*. <http://apps.wdfw.wa.gov/phsontheweb/>.
- WDFW. 2014b. *SalmonScape Online Mapping Application*. <http://apps.wdfw.wa.gov/salmonscape/map.html>.



King County

Department of Permitting  
and Environmental Review

35030 SE Douglas Street, Suite 210  
Snoqualmie, WA 98065-9266  
206-296-6600 TTY Relay: 711

Critical Areas Mitigation  
Bond Quantity Worksheet

C24 Web date: 11/30/2012

For alternate formats, call 206-296-6600.  
Print on legal-size (8 1/2 x 14") paper only.

Project Name: PSW - Firwood Lane

Date: 10/14/2015 Prepared by: M.Kamowski

Project Number:

Project Description: Buffer Enhancement

Location: Kirkland, WA

Applicant: PSW Seattle, LLC

Phone: (425) 337-3174

PLANT MATERIALS\*

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	\$5.00	Each			\$ -
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	2530		\$ 29,095.00
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each			\$ -
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each			\$ -
PLANTS: Seeding, by hand	\$0.50	SY			\$ -
PLANTS: Slips (willow, red-osier)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Flats/plugs	\$2.00	Each			\$ -
* All costs include installation					TOTAL \$ 29,095.00

INSTALLATION COSTS ( LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	\$37.88	CY			\$ -
Decompacting till/hardpan, medium, to 6" depth	\$1.57	CY	245.00		\$ 384.65
Decompacting till/hardpan, medium, to 12" depth	\$1.57	CY			\$ -
Hydroseeding	\$0.51	SY			\$ -
Labor, general (landscaping)	\$40.00	HR	8.00		\$ 320.00
Labor, general (construction)	\$40.00	HR			\$ -
Labor: Consultant, supervising	\$55.00	HR	4.00		\$ 220.00
Labor: Consultant, on-site re-design	\$95.00	HR			\$ -
Rental of decompacting machinery & operator	\$70.00	HR			\$ -
Sand, coarse builder's, delivered and spread	\$42.00	CY			\$ -
Staking material (set per tree)	\$7.00	Each			\$ -
Surveying, line & grade	\$250.00	HR			\$ -
Surveying, topographical	\$250.00	HR			\$ -
Watering, 1" of water, 50' soaker hose	\$3.62	MSF			\$ -
Irrigation - temporary	\$3,000.00	Acre	0.88		\$ 2,640.00
Irrigation - buried	\$4,500.00	Acre			\$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	\$1.02	SY			\$ -
	\$25.00	HR			\$ -
					\$ -
TOTAL					\$ 3,564.65

HABITAT STRUCTURES\*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	\$ 2.00	Each			\$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each			\$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each			\$ -
Logs, w/o root wads, 16"-24" diam., 30' long	\$245.00	Each			\$ -
Logs w/ root wads, 16"-24" diam., 30' long	\$460.00	Each			\$ -
Rocks, one-man	\$60.00	Each			\$ -
Rocks, two-man	\$120.00	Each			\$ -
Root wads	\$163.00	Each			\$ -
Spawning gravel, type A	\$22.00	CY			\$ -
Weir - log	\$1,500.00	Each			\$ -
Weir - adjustable	\$2,000.00	Each			\$ -
Woody debris, large	\$163.00	Each	2.00		\$ 326.00
Snags - anchored	\$400.00	Each			\$ -
Snags - on site	\$50.00	Each			\$ -
Snags - imported	\$800.00	Each			\$ -
					\$ -
					\$ -
TOTAL					\$ 326.00

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	\$ 4.89	CY			\$ -
Crushed surfacing, 1 1/4" minus	\$30.00	CY			\$ -
Ditching	\$7.03	CY			\$ -
Excavation, bulk	\$4.00	CY			\$ -
Fence, silt	\$1.60	LF			\$ -
Jute Mesh	\$1.26	SY			\$ -
Mulch, by hand, straw, 2" deep	\$1.27	SY			\$ -
Mulch, by hand, wood chips, 2" deep	\$3.25	SY	926.00		\$ 3,009.50
Mulch, by machine, straw, 1" deep	\$0.32	SY			\$ -
Piping, temporary, CPP, 6"	\$9.30	LF			\$ -
Piping, temporary, CPP, 8"	\$14.00	LF			\$ -
Piping, temporary, CPP, 12"	\$18.00	LF			\$ -
Plastic covering, 6mm thick, sandbagged	\$2.00	SY			\$ -
Rip Rap, machine placed, slopes	\$33.98	CY			\$ -
Rock Constr. Entrance 100'x15'x1'	\$3,000.00	Each			\$ -
Rock Constr. Entrance 50'x15'x1'	\$1,500.00	Each			\$ -
Sediment pond riser assembly	\$1,695.11	Each			\$ -
Sediment trap, 5' high berm	\$15.57	LF			\$ -
Sediment trap, 5' high berm w/spillway incl. riprap	\$59.60	LF			\$ -
Sodding, 1" deep, level ground	\$5.24	SY			\$ -
Sodding, 1" deep, sloped ground	\$6.48	SY			\$ -
Straw bales, place and remove	\$600.00	TON			\$ -
Hauling and disposal	\$20.00	CY			\$ -
Topsoil, delivered and spread	\$35.73	CY			\$ -
	\$17.00	CY			\$ -
					\$ -
TOTAL					\$ 3,009.50

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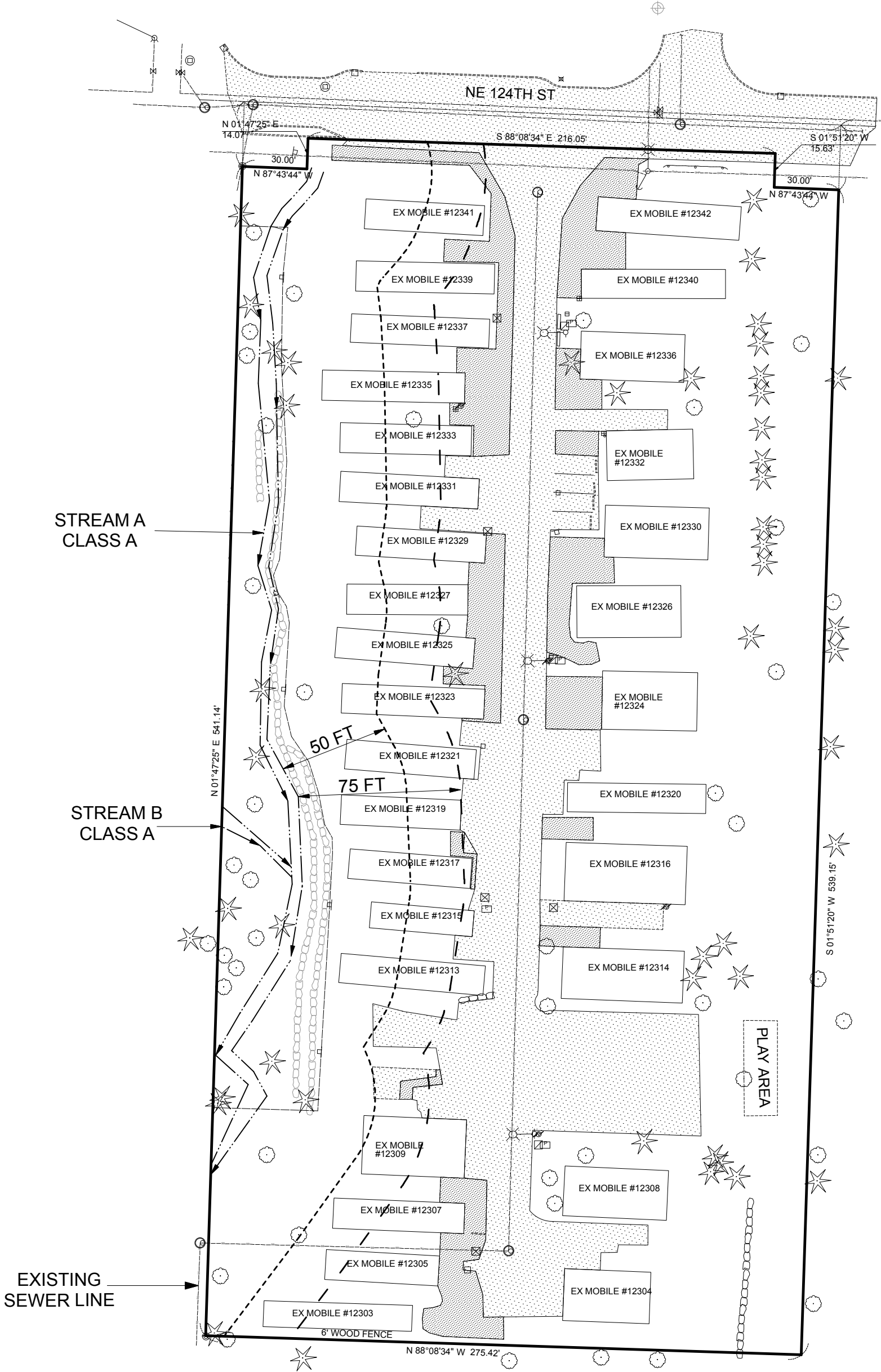
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10/30/2008 Page 1 of 2



<b>Total</b>	<b>\$72,092.23</b>
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EXISTING CONDITIONS MAP  
PSW SEATTLE - FIRWOOD LANE  
PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



**LEGEND**

- STREAM
- 75-FOOT BUFFER
- 50-FOOT BUFFER

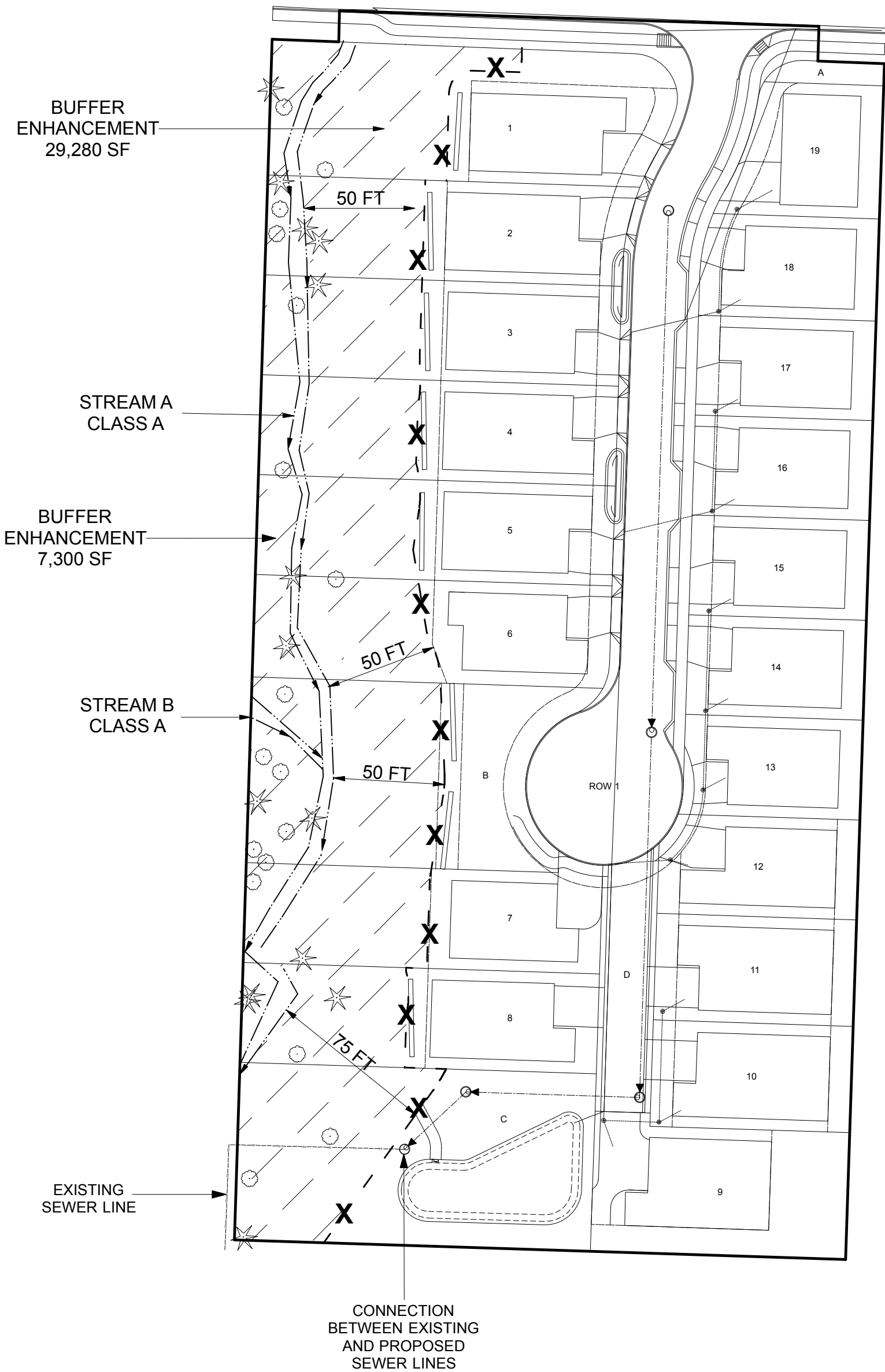
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**Wetland Resources, Inc.**  
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance  
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208  
Phone: (425) 337-3174  
Fax: (425) 337-3045  
Email: mailbox@wetlandresources.com

**EXISTING CONDITIONS MAP  
PSW SEATTLE - FIRWOOD LANE**

PSW Seattle, LLC Ben Rutkowski 218 Main Street #109 Kirkland WA 98033	Sheet 1/4 WRI Job # 15057 Drawn by: MK Date: 06.10.2015 Revision #1: 10.14.2015
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SENSITIVE AREA STUDY AND BUFFER ENHANCEMENT PLAN  
PSW SEATTLE - FIRWOOD LANE  
PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



LEGEND

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STREAM

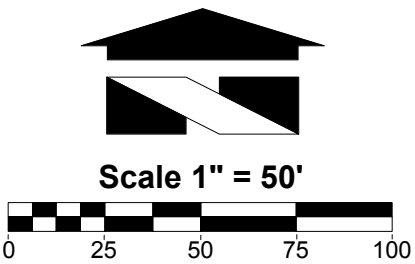
- - -

BUFFER

BUFFER  
ENHANCEMENT

X

FENCE



**Wetland Resources, Inc.**

Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance

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SENSITIVE AREAS AND BUFFER  
ENHANCEMENT PLAN  
**PSW SEATTLE - FIRWOOD LANE**

Sheet 2/4

PSW Seattle, LLC

Ben Rutkowski

218 Main Street #109

Kirkland WA 98033

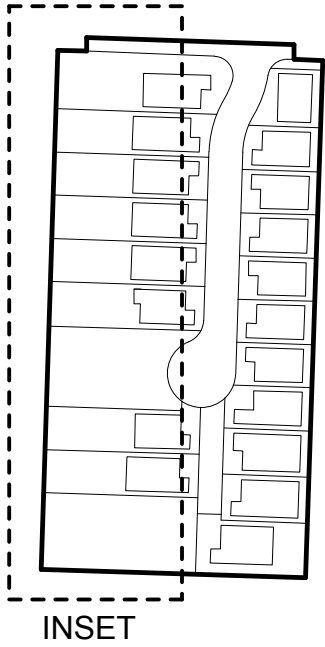
WRI Job # 15057

Drawn by: MK

Date: 06.10.2015

Revision #1: 10.14.2015

**ENHANCEMENT PREPARATION PLAN**  
**PSW SEATTLE - FIRWOOD LANE**  
 PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



**ZONE 1**  
REMOVE ALL  
BLACKBERRY,  
NIGHTSHADE,  
REED CANARY GRASS,  
AND BINDWEED

## REMOVE PAVERS ALONG STREAM


AREA TO BE  
CULTIVATED AFTER  
ALL STRUCTURES  
ARE REMOVED

**ZONE 2**  
REMOVE ALL  
BLACKBERRY  
AND IVY.

**ZONE 3**  
REMOVE ALL  
BLACKBERRY  
AND IVY

## LEGEND

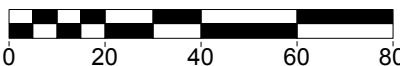
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 CULTIVATION/  
SOIL DECOMPACTION

**X** FENCE



**Scale 1" = 40'**



Wetland Resources, Inc.

Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance  
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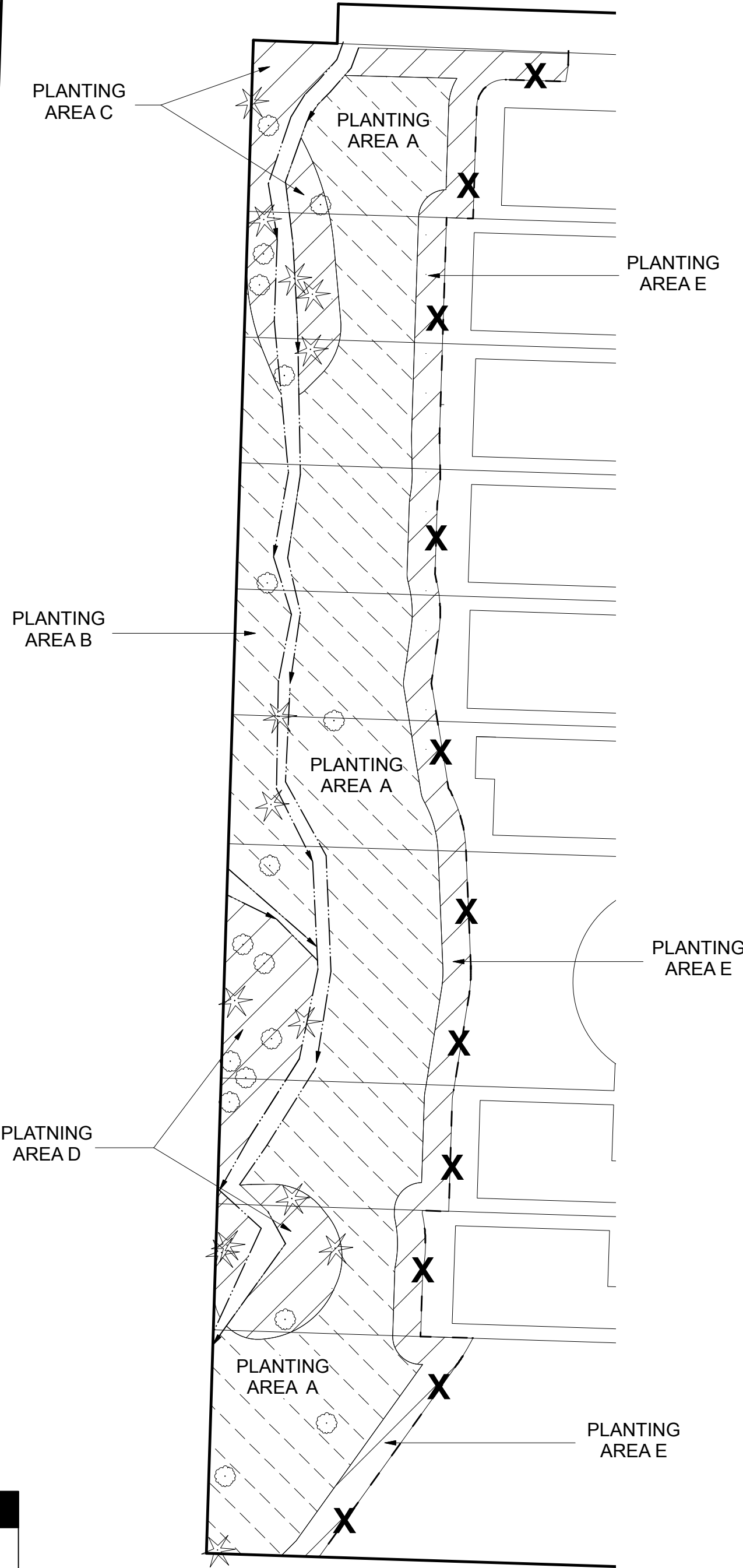
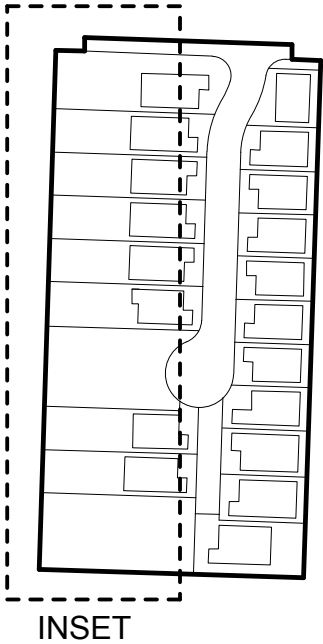
Email: [mailbox@wetlandresources.com](mailto:mailbox@wetlandresources.com)

ENHANCEMENT PREPARATION PLAN  
***PSW SEATTLE - FIRWOOD LANE***

PSW Seattle, LLC  
Ben Rutkowski  
218 Main Street #109  
Kirkland WA 98033

Sheet 3/4  
WRI Job # 15057  
Drawn by: MK  
Date: 06.10.2015  
Revision #1: 10.14.2015

**BUFFER ENHANCEMENT PLANTING PLAN**  
**PSW SEATTLE - FIRWOOD LANE**  
PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



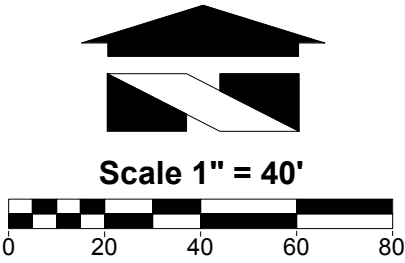
**LEGEND**

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SHRUBS AND HERBACEOUS PLANTS

TREES, SHRUBS, AND HERBACEOUS PLANTS

**X** FENCE



**Wetland Resources, Inc.**  
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**BUFFER ENHANCEMENT PLANTING PLAN**  
**PSW SEATTLE - FIRWOOD LANE**

PSW Seattle, LLC  
Ben Rutkowski  
218 Main Street #109  
Kirkland WA 98033

Sheet 4/4  
WRI Job # 15057  
Drawn by: MK  
Date: 06.10.2015  
Revision #1: 10.14.2015